Balance Issues Pre and Post-op Acoustic Neuroma

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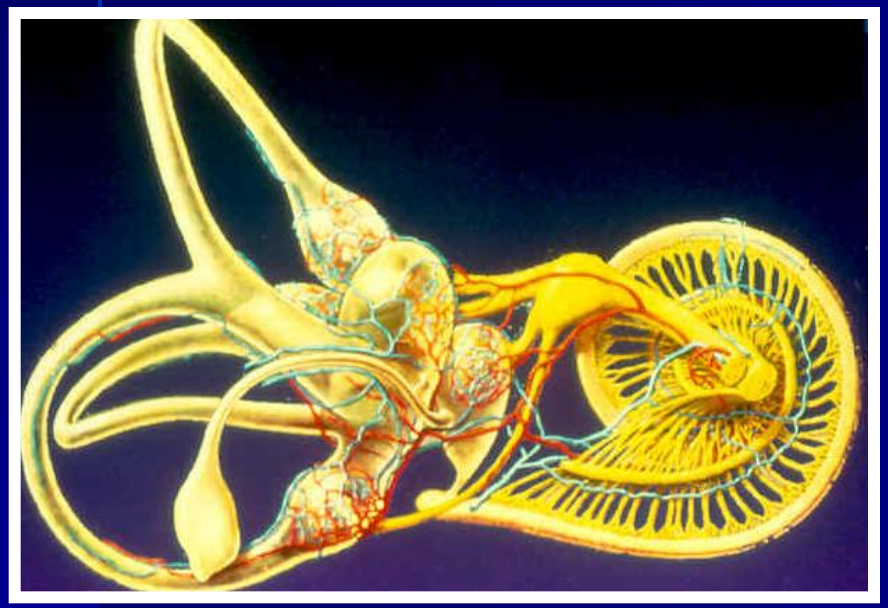
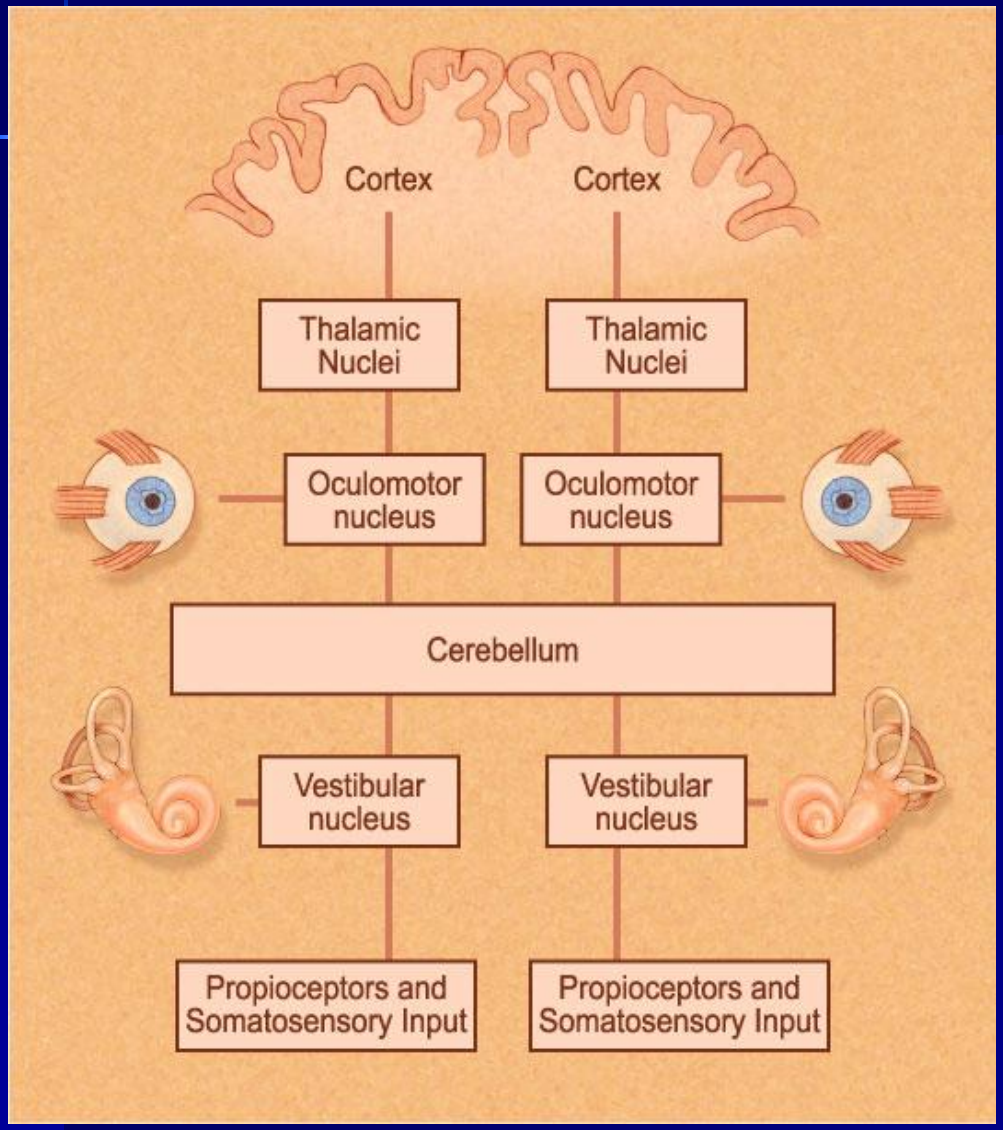
What the inner ear does for you is Inertial navigation

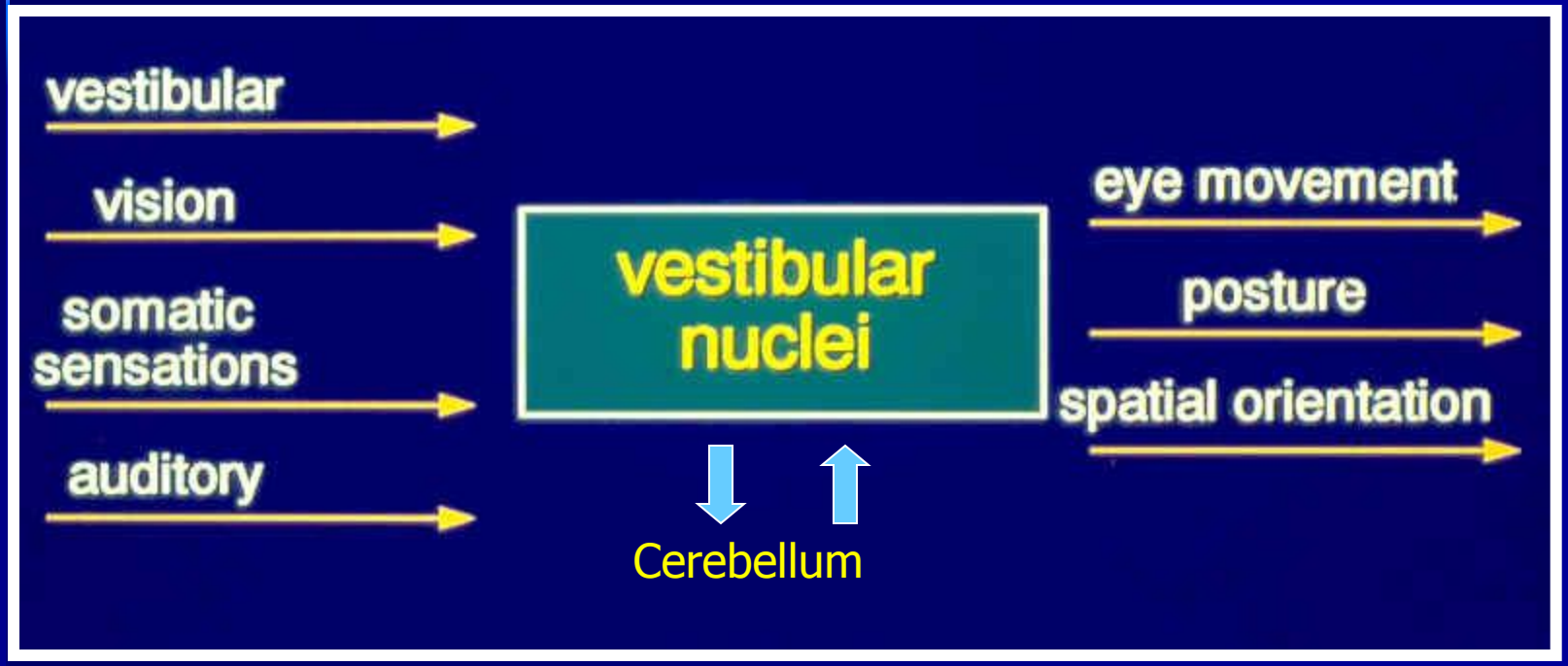


How balance works



- Inner ears
  - Inertial navigation
- Vision – location of environment
- Feet -- sensation
- Brain integrates and predicts
- Cerebellum adjusts

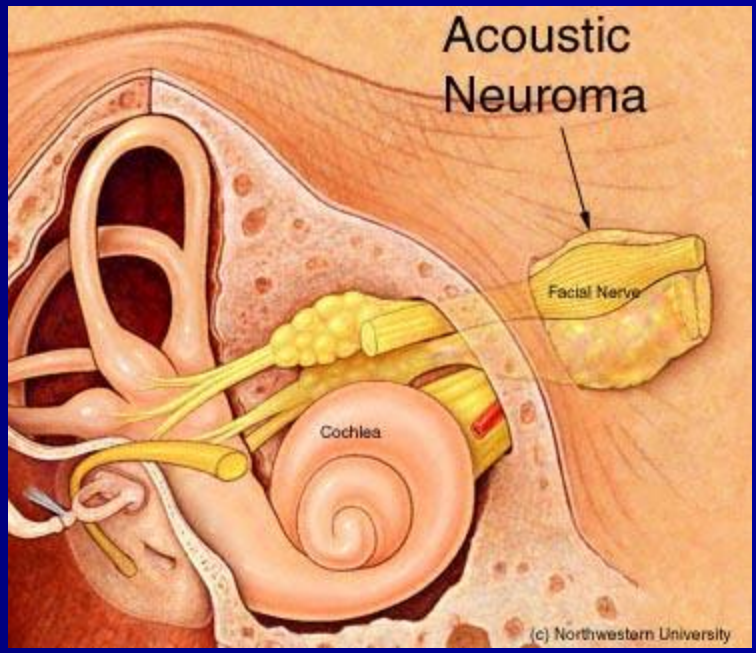
Input streams



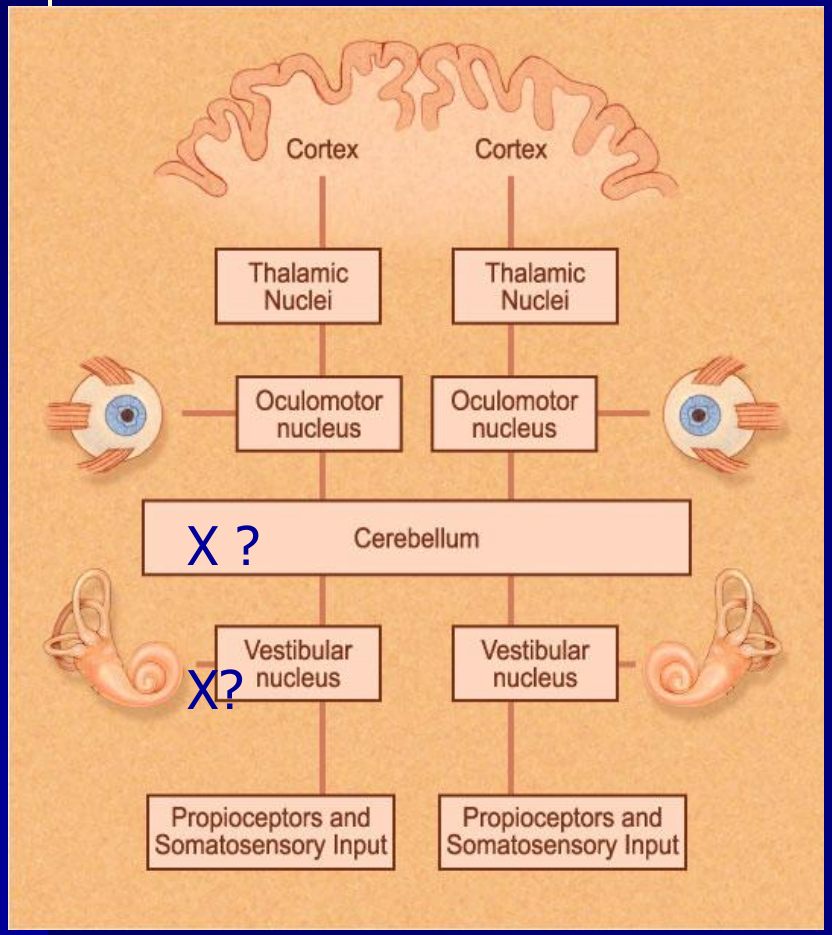
Brain also forms internal model - -another input

Acoustic Neuroma – what it does

- Starts with irritable nerve
- Progresses to dead nerve
- Very long natural course.
- All treatments speed up rate of damage



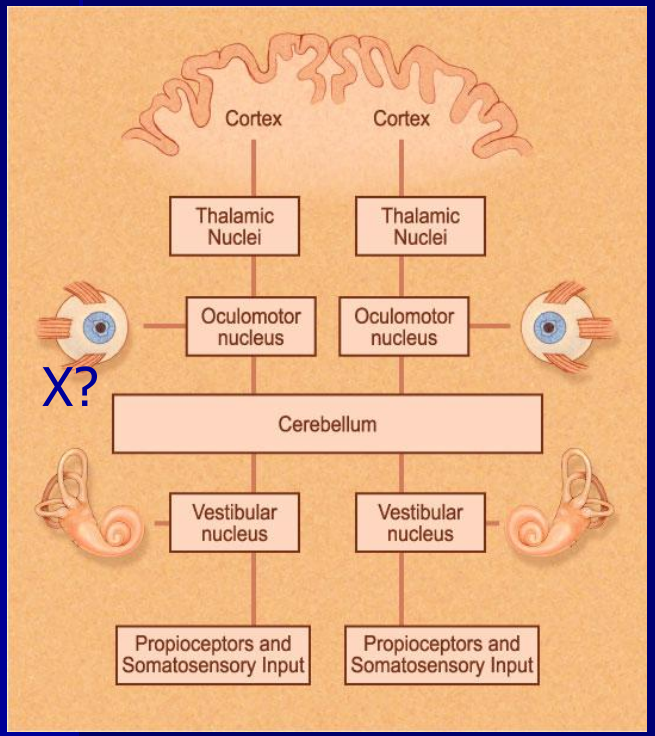
Pre-surgery Dizziness Several possibilities

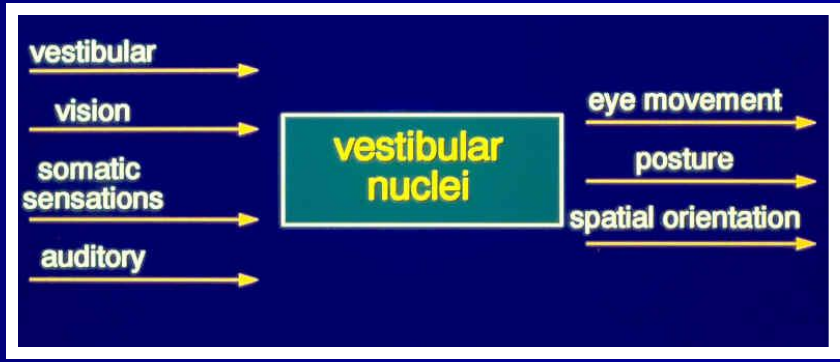


- No damage to vestibular nerve at start
- Irritable vestibular nerve in middle
  - "quick spins", motion intolerance
- Partial or complete loss of vestibular nerve (slowly worsens)
  - Chronic spinning, motion intolerance, imbalance
- Possible reduced cerebellar function
  - Mainly in very large tumors
  - Permanent dizzy and imbalance

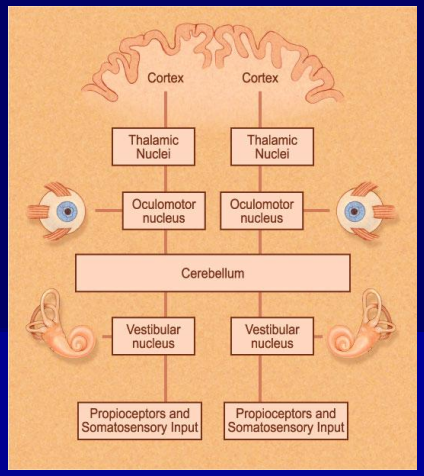
Expect vertigo and imbalance post-surgery

AN – takes out one ear,
but you still have many other inputs



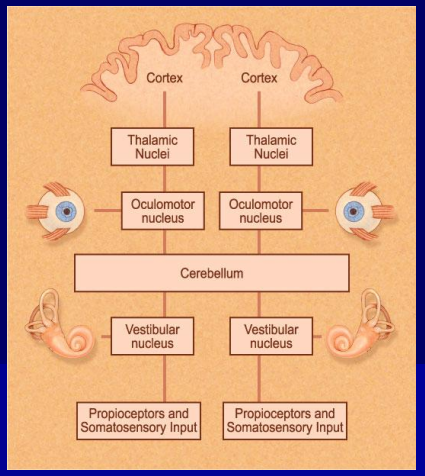


Plasticity and Compensation – adjust to loss of inner ear



- After 2 years, most people with complete loss of inner ear are "hard to tell" from normal people.
  - Rare people with "cerebellar problems" don't do as well.

Plasticity and Compensation



Dizziness is mainly proportional to amount of change and how recent change occurred

- Lots of change – more dizzy
- Recent change – more dizzy

Treatments produce different rate of change

- Conservative (watch/wait)
  - Slowly evolving damage (10 years)
- Radiation (i.e. gamma knife)
  - More rapidly evolving damage (2 years peak)
- Surgical removal
  - **Sudden** partial or complete loss of vestibular nerve

Managing symptoms

Medications
Activity and Physical Therapy

Medications

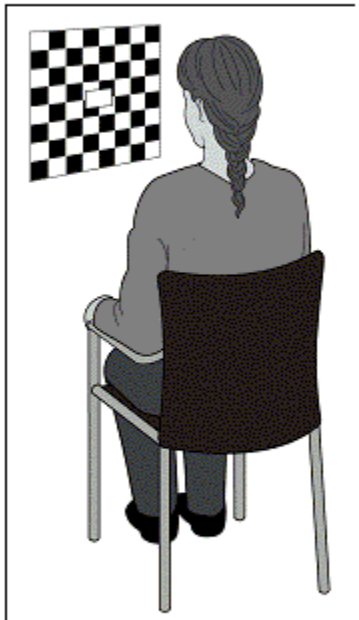
- Vestibular suppressants
  - Antivert (meclizine)
  - Valium (diazepam) like drugs
  - These drugs may slow down compensation
- Medications for vomiting
  - Ondansetron, promethazine
- Medications for irritable nerves
  - anticonvulsants

Activity and PT – used post-surgery

- Done after surgeon says safe (usually a couple of weeks)
- Speeds up recovery
- Do things that make you dizzy
  - Turn head to side of surgery
  - Practice balance
- Push yourself to edge of getting sick

Exercise protocols with Physical Therapist

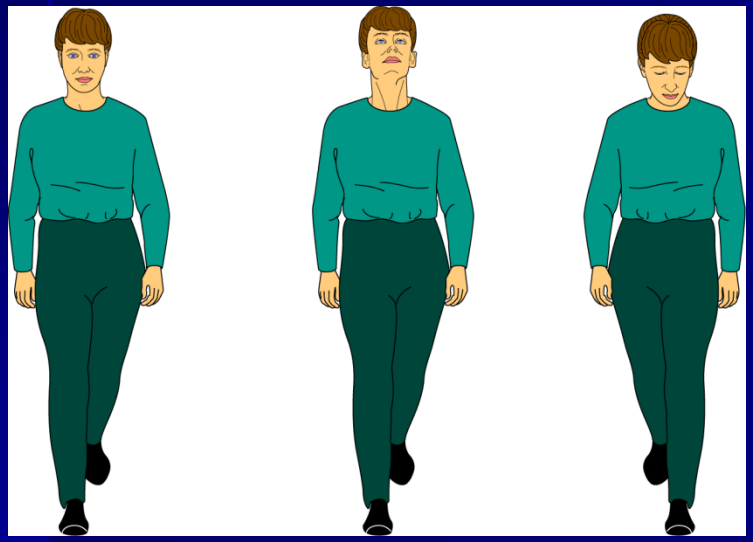
"Gaze stabilization" exercises

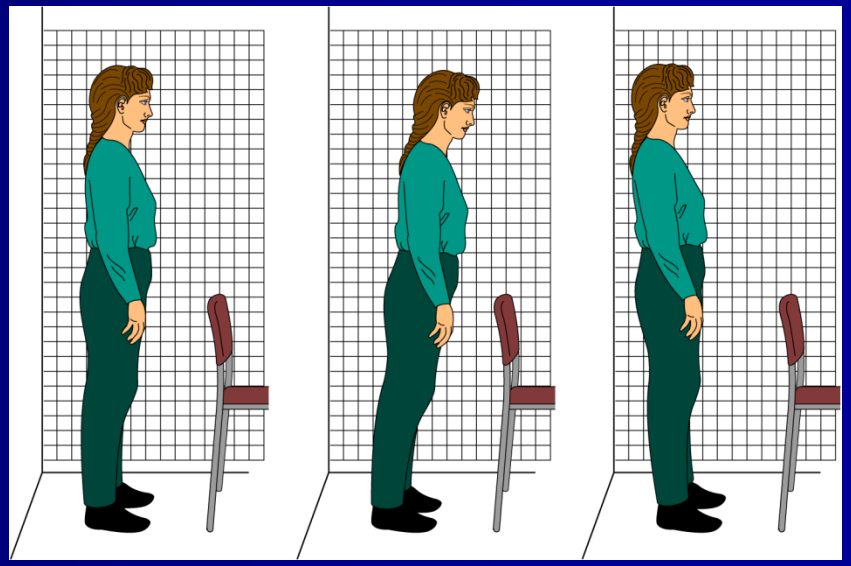


http://www.dizziness-and-balance.com/treatment/rehab/gaze%20stab.html

Exercise protocols with Physical Therapist

- Gait and balance practice





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Exercise protocols – do it yourself

- Cawthorne Cooksey Exercises
  - http://www.dizziness-and-balance.com/treatment/rehab/cawthorne.html
- "Wii-fit" balance training.
  - http://www.dizziness-and-balance.com/treatment/rehab/wii%20VRT.html
- Tai Chi for balance
  - http://www.dizziness-and-balance.com/taichi/default.htm

Overall

- Expect to be dizzy before and after AN surgery
- Use medications briefly and sparingly
- Regular activity or Physical therapy should be started as soon as surgeon say it is safe
- By 2 years after surgery, most will look “normal”.

Lots more information on my website

www.dizziness-and-balance.com

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